trados, et qu'il suffit de donner à leurs points d'appui les trois quarts de ceux des voûtes en plein-cintre de même forme et dimension."—Vol. iv. p. 292.

There is yet another excellence which has been practised in the construction of Gothic arches, as mentioned by Dr. Möller, in his "Denkmaller der Deutschen Baukunst."

"In regard to the buttresses or contreforts of the vaulting, we find a method practised in the Cathedral at Cologne, which, although hitherto unnoticed, appears to be as judicious and serviceable as it is simple.

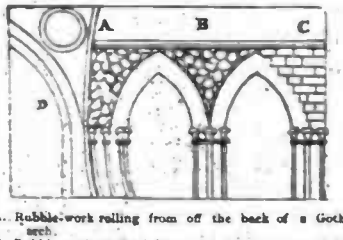
"The lower part of the vaulting is formed by horizontal courses of the stone-work projecting out from the wall, similarly to the construction observed in the treasury of Atreus. Consequently, the actual span of the vaulting, and its volume or bulk, are proportionably decreased, while, on the other hand, the abutment is in the same degree strengthened. Still more deserving of attention is the manner in which the essential parts are so linked together as to be rendered incapable of thrusting or giving way, and must therefore, of necessity, remain in the precise position they were intended to be in." (Translation by W. H. Leeds, p. 153.)

Now, an examination of the steeple of St. Dunstan's in the East, London, will shew that Wren, either from studying the Gothic buildings, or by his own skill, was led to practise the same mode of construction as is to be observed in the vaulting of Cologne Cathedral; for the lower courses of the four flying-buttresses of St. Dunstan's steeple are laid horizontally, and form indeed one with the courses of the masonary of the four pinnacles surmounting the angles of the tower of the church.

Of the Defects resulting from the Use of Gothic Arches, and of the Remedy for those Defects.

There is one defect, which may by oversight subsist in an eminent degree; the property by which pointed arches may, by reason of their steepness, throw off from their extrados or backs the spandrils or materials which are frequently piled upon them. In a range of arches of equal size and strength this is of no ill effect, for repose is preserved by the materials of the spandrils tending to slide equally from the backs of each pair of arches, and thence falling upon the pier beneath them; but against the end arches, must be abutment sufficient to resist the moving power of the spandrils, or they will slide off, and the end arches becoming crippled, the adjoining arches also will be more or less deranged.

This is found in actual practice: a great portion of Gothic masonry, being cheap rubble-work, has a very great tendency to roll where-



A. Rubble-work rolling from off the back of a Gothic arch.
B. Rubble-work retained in repose between two Gothic arches.
C. Spandril graduated in regular courses upon the back of a Gothic arch.
D. Internal arch-buttresses counteracting the bulging of the four great central piers of a Gothic cathedral.

ever there is a want of equilibrium, hence at the crossing of the nave, choir, and transepts of most Gothic cathedrals, there is more or less giving inwards of the four great central piers; and to counteract this failure, and to render those piers capable of bearing a stupendous tower or steeple, the most scientifically ingenious internal "*Arcs-boutants*" have been inserted in some cathedrals, as those of Salisbury, Wells, and Canterbury.

To prevent this bad effect, the spandrils over Gothic arches, and indeed over all arches should be laid in courses of squared masonry or brick-work, and the backs of the arches should be formed in a series of horizontal gradations, so as to have no tendency to roll from off their seats the superincumbent masonry.—From *Essay on the Decline of Excellence in the Structure and Science of Modern English Buildings*. By Alfred Bartholomew, Esq., Architect, F.A.S., Hon. Secretary to the Freemasons of the Church.

[It appears that Mr. Bartholomew has much new matter to communicate relative to the construction of pointed architecture, and is able to solve many difficulties relative to the thrust and equilibrium of arches, which he will do by the application of the *catenaria* to the subject, and will further shew the great skill of the Freemasons on this very subject; his papers thereon will most probably appear in the Transactions of the new college, of which he is hon. secretary.]

Miscellanea.

Nelson's Statue.—A casting of one of the volutes for Nelson's monument, Trafalgar-square, took place on Saturday afternoon at the Royal Arsenal, Woolwich, and narrowly escaped being a failure, not from any want of judgment in the plans adopted by Mr. Clark, the artist to whom the making of the ornaments of the column has been intrusted, but to an unforeseen accident; the back of the furnace having given way when the metal was nearly in its complete state of fusion, which caused about 700 to 800lb. of the boiling metal to fall amongst the coals and ashes. Fortunately Mr. Clark had added a larger quantity of metal to the furnance in the first instance, and immediately on the accident taking place attempted the casting, and succeeded partly in filling the mould with the aid of about 20lb. of metal which was fortunately in a fluid state in another part of the foundry. The casting has been taken out to ascertain that it was perfect, and a more beautiful piece of workmanship in all its parts could not have been made under the most favourable circumstances. The quantity of metal in the volute is as near as possible to the weight calculated upon, being from 10 to 11 cwt.

Houses of Parliament.—A return made to the House of Commons, published yesterday morning, states that the total amount already expended for building the new Houses of Parliament is 380,483*l*. 10s., the amount voted has been 438,500*l*., and consequently 58,016*l*. 10s. is in hand unexpended, which will be required for works now in progress of completion. It is estimated that a further sum of 578,424*l*. 12s. 9d. will be required to complete the buildings. The total amount of Mr. Barry's estimate will therefore be 1,016,924*l*. 12s. 9d., besides what will be required for completing the lauding-places, making good the pavings, furniture, and fittings, and for decorations by works of art.—[How funny the shillings and pence appear in the company of these formidable amounts, particularly as estimates.

Metropolitan Improvement.—By direction of the Commissioners of Woods and Forests several houses in the line of the new street, to lead from Oxford Street to Holborn, and which is to be called Oxford Street East, were sold by auction, on Monday last, and they will be immediately pulled down. Very rapid progress has been made during the last few weeks, and a great many houses have been disposed of in a similar way. Nearly all the houses on the west side of Plumtree Street, and on the north side of Hyde Street, are levelled with the ground. The street will be in a straight line, about 1,300 feet long, and 50 feet wide. Applications have already been made to the Commissioners for ground to build upon.

The Aeriel Steam Carriage.—The following is an extract of a letter from a gentleman closely connected with the scientific world in London, to a relative in this town. The matter has been by most persons considered a joke, as it appeared improbable. An Act of Parliament, however, is now being obtained, for the purpose of investing the patent in a company, that it may be properly carried out; but until the first public trial is made, the nature of the motive power to be used is kept strictly secret. "The aerial scheme is actually to be attempted; the trial has proved effective; it will convey six to eight passengers from hence to Paris in thirty minutes, to Boulogne in twenty minutes." What will the world come to at last? We shall by-and-by, be accepting invitations to Calcutta to dinner, to return again at night.

Germany—*Carlsruhe*.—The opening of the railway from Carlsruhe to Manheim will take place sooner than was expected; it is fixed for the 15th of April.—From the *Chemin de Fer*.

Architecture.—We understand that the design and plan of the intended almshouses at Spalding, in Lincolnshire, has been furnished by Mr. Henry W. Todd, of Ripon, a young gentleman just commencing his professional career. As there were seventeen competitors, and this is his first effort, the decision is highly creditable to him.—*Leeds Mercury*.

Erection of a new Hospital.—A new hospital on an extensive scale is about to be erected in the Marylebone and Paddington district.

New Plan for making Bricks, &c.—The following description of a new system applicable to making bricks, tiles, and tesseræ, for forming tessellated pavements; also inlaid and mosaic pavements generally; the invention of Mr. Prosser, was given at a late meeting of the Society of Arts:—The essential character of this invention is moulding bricks and tiles from a comparatively dry powder, instead of from a moist clay. Certain proportions of clay and feldspar are ground to powder, and well incorporated; and, when ready for the workman, the powder contains not more than seven per cent. of water. This powder is placed in a mould, and subjected to a pressure, greater in proportion to the size of the mould, and to the required thickness of the article. When removed from the mould, the article is subjected to the usual process of baking, &c. The tiles are cut with iron and sand, are not absolutely dry, never contract, become rather heavier by absorption of water from the air, are not the better if made under a superior pressure, and can be baked immediately after they are made; frost does not hurt them. Bricks can be made cheaper by this than by the ordinary process, the saving being in time, not in material: these bricks are much more dense. A box of shirt buttons, made by the same process, of pipe clay and felspar, was placed in our hands; they are coarse, and not to be compared with mother-of-pearl: the materials of which these specimens are made do not appear to have been reduced to a sufficiently fine powder, and the moulds could not have been of the best execution. They are, manifestly, susceptible of improvement.

Spalding Almshouses.—We believe our announcement of Architectural Competition had some connection with the success of Mr. Todd, of London, to whom the palm of merit has been awarded. Lincolnshire has been the scene of several triumphs to Mr. Kendale, but on this occasion he was destined to experience defeat; there were sixteen competitors, and in addition to those just named were Messrs. Dwyer, of London; Dain, of Leicester; Mitchell, of Sheffield; Pocock and Glover, of Hungtingdon, &c. &c. We shall be greatly obliged to Mr. Todd to favour us with an opportunity of giving our readers a sight of his designs.

Monument.—A chaste tablet of white marble, having a suitable inscription, has this week been erected in the church of St. James, Thornton, to the memory of the late Mr. John Fawthrop, of that place. The execution of this beautiful tribute to a good and clever man, reflects the highest credit on the artist—Mr. J. B. Leyland, of Halifax.

New Prison.—The sanction of the Secretary of State for the Home Department has been received for the erection of a new prison for the borough of Leeds, upon the old Armley-hall site. The quantity of land appropriated to the same not to be less than seven, and not to exceed ten acres. This official sanction will, we understand, be brought under the consideration of the Council at their meeting on Wednesday next.

Office of Commissioners of Sewers, Guildhall—Wood Pavement.—A meeting of the Commissioners of Sewers for the city of London took place on Tuesday last at their office, for the purpose of receiving a report of the sub-committee appointed to take into consideration the propriety of paving Cheapside with wood. The chair was taken by Alderman Gibbs, and a vast deal of interest appeared to exist among the members upon a question affecting so important a thoroughfare. The report of the sub-committee upon a petition of certain inhabitants of Cheapside, for carrying into effect the object of paving that street from the Poultry to Newgate-street, was read: it recommended the plan of putting down wooden blocks. Sir Peter Laurie opposed the recommendation of the sub-committee upon the grounds so frequently discussed, the danger to man and horse, and proposed as an amendment, "That no wood pavement be introduced for one year." Deputy Gordon followed on the same side; Mr. R. L. Jones supported the report of the sub-committee, and declared that in those portions of the city in which wood pavement had been introduced, the greatest satisfaction was felt and expressed at the advantages of the change,—cleanliness, comfort, and convenience, in lieu of dirt and noise. It was finally agreed that Cheapside should be paved with wood.

To learn more about PDF Compression and OCR visit our website